KINESCOPE RECORDING WITH ARRIFLEX CAMERAS

TECHNICAL DATA SHEET NO. A-17-371

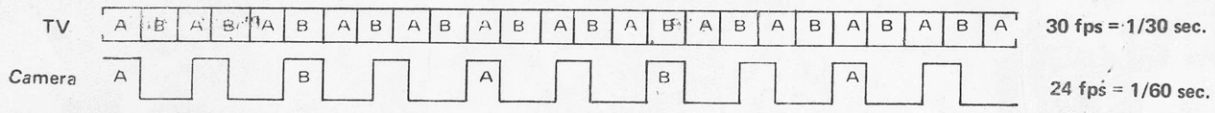
Arriflex 16S and 16M cameras are frequently used for Kinescope recording, a process in which an optical image is recorded on film from a display on a television monitor.

To understand the problems involved in Kinescope recording, one should first have a general concept of the working principle of a T.V. system. A television image is formed 30 times per second and consists of two fields, "A" and "B". Starting in the upper left corner of the screen, a scanning beam first produces one field (A) by scanning every other line on the screen (raster). After field "A" is completed, the scanner interlaces field "B" by scanning every line, omitted during the first scanning, and so on . . . . . The phosphor afterglow of the television tube and the persistence of the human eye retain the traces just long enough to mix "A" and "B" fields to give a flicker-free, continuous brightness picture.

The first requirement of recording television pictures on motion picture film therefore is the reconciliation of the 24-frame per second rate of motion picture film with the 30 per second rate of the television monitor. With the Arriflex 16S and M Kinescope recording can be accomplished in two ways:

a) **Supressed field recording at 24 fps.** In this application, the standard camera mirror shutter is replaced by a special shutter with a 144° effective opening to provide an exposure time of 1/60 seconds at 24 frames per second. This is necessary in many cases since standard projection equipment for motion picture film and sound runs at 24 fps. and any change in this speed would result in motion changes and sound distortion.

At 24 fps., the camera "skips" in a periodic sequence 6 out of 30 televised pictures.



As seen on the above schematic diagram, the camera actually photographs only half a television picture (1/60 seconds) twenty-four times per second, with every second one frame being a composite of half "A" and "B" fields. This explains the presence of the "scanning bar" in surpressed field Kinescope recording appearing as a lighter or darker band horizontally across the photographed images which comes into the photographed field every time camera and monitor are of phase.

The Arriflex 16 can be equipped with a phase shifting device that allows the rotating of the Synch motor while the camera is running thus shifting the phase relationship between monitor and camera to the most favorable position.

b) **30 fps Kinescope recording.** This technique is applied whenever the projection of the motion picture film is not done at 24 fps or, if the recorded data is not critical in regard to motion changes resulting from a speed change. A distinct advantage to this technique is that the Arriflex camera needs not to be modified, since the standard mirror shutter with 180° effective opening will provide a 1/60 second exposure time at 30-frames per second. A special Synch motor with exchangeable geared head will drive the camera in Synch with the television monitor, with the phase shifting device providing the means to eliminate the "scanning bar" from being photographed. In this mode, again only half a television picture is photographed, but contrary to surpressed field recording, it is always a complete "A" or "B" field.

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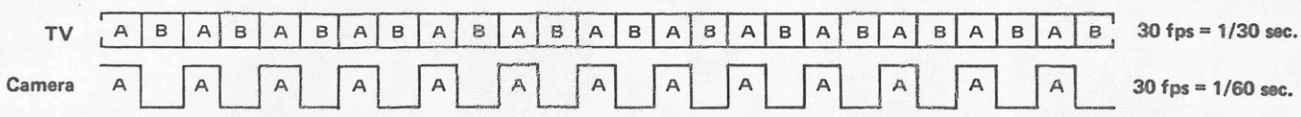
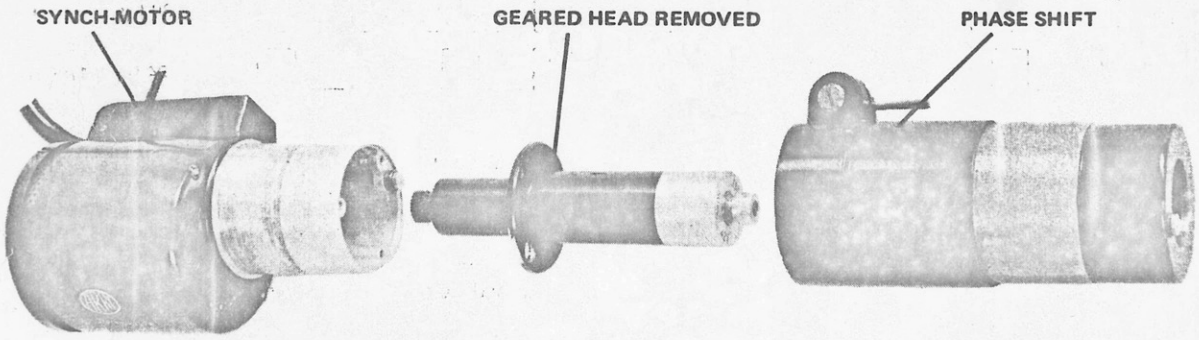


Using special film stocks, such as Eastman 7374 or 7302 sensitive to the blue television image, and predetermined best lens openings, can greatly contribute to making high quality Kinescope recordings.

Catalog No. 301-020	Arriflex 16S—Camera only
Catalog No. 301-023	Arriflex 16M—Camera only
Catalog No. 339-328	Synchronous motor 110 VAC/60 Hz 24 fps with 8 VDC power supply to drive camera accessoreis and provision to change motor to 30 fps operation.
Catalog No. 339-363	Geared head, 30 fps for use with motor 339-326.
Catalog No. 339-360	Mechanical phase shifting attachment for synchronous motor.
Catalog No. 300-001	Special mirror shutter 144° effective opening, requires installation in our Service Department if not originally ordered with camera.



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